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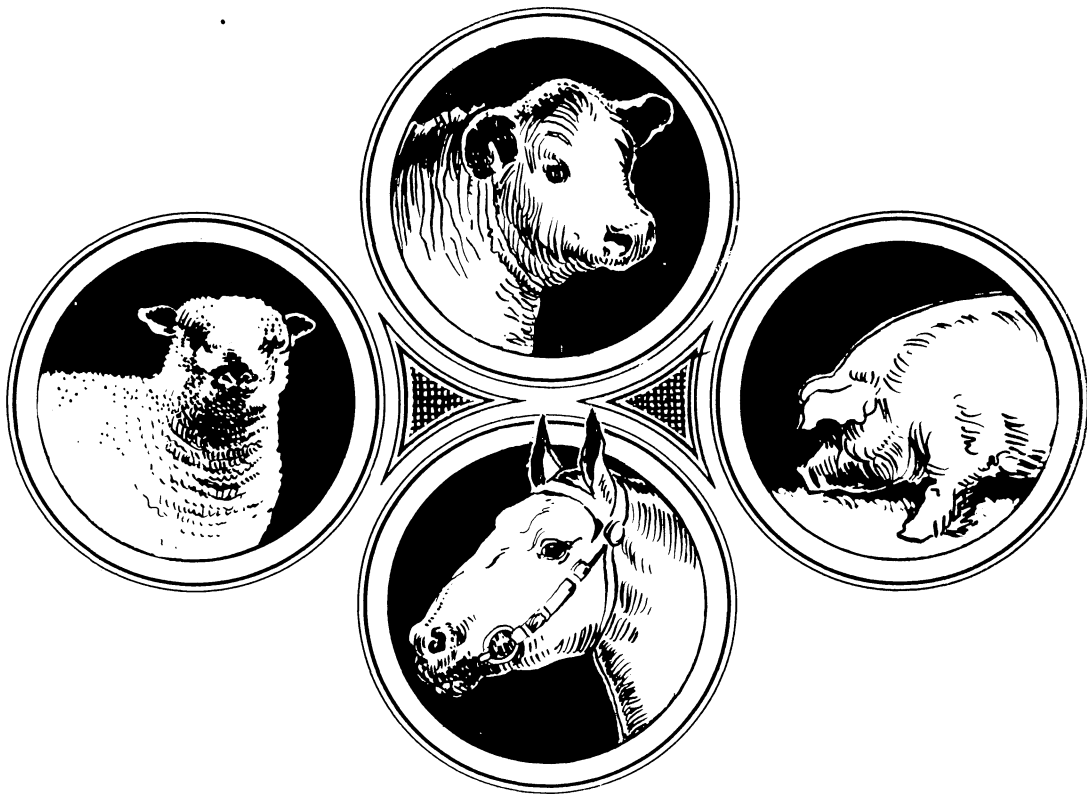
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June 4/

The EXTENSION ANIMAL HUSBANDMAN



UNITED STATES DEPARTMENT
OF AGRICULTURE
WASHINGTON,
D.C.

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Washington, D. C.

THE EXTENSION ANIMAL HUSBANDMAN

Issued quarterly by the Bureau of Animal Industry
and Extension Service, Cooperating.

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K. F. Warner, Senior Extension Meat Specialist.

Serial No. 62

---June 1941

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THE INFLUENCE OF CLIMATIC CONDITIONS ON
BEEF PRODUCTION IN THE GULF COAST AREA

By A. O. Rhoad,
In Charge, Iberia Livestock Experiment Farm,
Bureau of Animal Industry,
Jeanerette, La.

- - -

Animal husbandmen and breeders in general are familiar with the important part that environment plays in the proper development and efficient production of all classes of livestock. In fact much of the effort of the breeder and cost of production are used in furnishing an adequate nutritional and health environment for his flocks and herds. Our knowledge of these two very important factors of the environment and their effect on livestock production is rather exact and our control of them is quite complete. On the other hand, our knowledge of the effects of climate, also an important factor of the environment, is still rather meager and our control is not so complete.

Climate affects production mostly indirectly by influencing the amount and type of pasturage and other feeds, produced in the locality. Climate also is a limiting factor in determining the presence or absence of certain parasites and other disease agencies. Climate, however, also affects production by acting directly upon the animals. It is of the direct effects of climate on farm animals that our exact knowledge is rather meager.

At the Iberia Livestock Experiment Farm, Jeanerette, La., the Bureau of Animal Industry is investigating the influences of the more important climatic factors on beef cattle in conjunction with the crossbreeding program of the station. The crossbreeding program using Aberdeen-Angus X Brahman and Aberdeen-Angus X Africander cattle was started in view of the general practice along the Gulf Coast of using Brahman type cattle to add resistant qualities to the range herds. That purebred and very high-grade European cattle do not thrive on the open range under Gulf Coast climatic conditions is a common observation of the cattlemen and is verified by the data of table 1 which gives the mature weight of 15 Aberdeen-Angus cows brought down from the North and their daughters dropped at the Jeanerette station, grouped according to condition of flesh. There is an average difference of about 200 pounds.

Table 1. - Effect of continuous summer temperatures on mature weight of northern-bred and Jeanerette-bred purebred Aberdeen-Angus cattle

<u>Item</u>	<u>Weight, in pounds, of cattle grouped according to condition.</u>			
	<u>Poor</u>	<u>Medium</u>	<u>Good</u>	<u>Fat</u>
Northern bred	918	1,080	1,182	1,222
Jeanerette bred	712	885	910	1,101
Difference	206	195	272	121

This is further emphasized in weights of Jersey and Holstein-Friesian cows bred at the Louisiana State University in comparison with normal weights of cattle of the same breeds in Missouri. At five years, Jersey cows weighed 854 pounds as against 937 pounds for the Missouri normal, a difference of 83 pounds and Holstein-Friesians at five years, 1,120 pounds compared to 1,345 pounds of the Missouri normal, a difference of 225 pounds.

To what extent the lower mature weight of Jeanerette-bred Aberdeen-Angus may be attributed to direct effects of climate acting upon the young growing animal and upon the lactating mother is difficult to determine. Some evidence, however, of the effect of long hot summers on the lactating range animal is found in table 2 which gives the average weaning age (all steer calves and heifers are weaned at 450 pounds) and average daily gain of reciprocal quarterbred (1/4 Brahman 3/4 Angus) animals, that is, quarterbreds out of halfbred dams and by purebred Aberdeen-Angus sires and the quarterbreds out of purebred Aberdeen-Angus dams by halfbred sires.

Table 2. - Rate of growth of reciprocal quarterbred
Brahman Angus calves, from birth to weaning

Dam	Sire	Age (Days)		Daily gain (lbs.)	
		Bulls	Heifers	Bulls	Heifers
Halfbred	A.-Angus	228.4	244.5	1.97	1.84
A.-Angus	Halfbred	298.0	272.7	1.51	1.65

The faster growth habit of quarterbred calves out of halfbred cows is attributed to a more persistent milk flow during the heat of the summer as the halfbred cows are not materially affected by the heat. On the other hand the purebred Aberdeen-Angus cows suffer considerably with the heat, affecting the quantity of milk produced and also their grazing habits.

The amount of time range animals graze during the day, with abundant pasturage available, will influence their gains and, if nursing cows, will likewise influence their milk production. Table 3 gives, in percent of daylight hours, the amount of time various strains of cattle spent in grazing, resting in the sun and resting in the shade.

Table 3. - Grazing habits in percent of daylight hours

Strain	No. tests	Grazing %	Resting in	
			Sun %	Shade %
Brahman (609-691-674).....	7	43.9	53.4	2.7
St. Gertrudis (1-2-3)	7	38.7	32.5	29.8
1/2 Afri. 1/2 Angus (7-8-17)	5	37.2	22.8	40.0
1/2 Bra. 1/2 Angus (G1-1062)	3	33.2	41.2	25.6
Aberdeen Angus (225-228-231-233)...	7	28.1	43.3	48.6

The foregoing tables illustrate how climatic factors influence the mature weight of cattle, the growth rate of similarly bred calves by influencing milk production of range cows and their grazing habits during daylight hours of summer. They likewise illustrate definite genetic differences in adaptability to climatic conditions of the Gulf Coast region.

A physiological explanation of the differences in adaptability is found in the differences in efficiency of heat disposal of the various types of cattle. Tables 4 and 5 give the mean rates of respiration and mean body temperatures at varying summer temperatures with the animals held in the shade and also in the sun.

Table 4. - Mean respiratory rate at shade temperatures with the cows held in the shade and also in the sun (Mean of 852 observations)

Shade temp. °F.	Cows held in	Purebred Angus resp/min.	3/4 Angus 1/4 Brahman resp/min.	1/2 Angus 1/2 Brahman resp/min.	Purebred Brahman resp/min.
86-95	Sun	102.2*	105.4	55.1	36.8
	Shade	88.9	88.0	44.8	32.7
76-85	Sun	88.3	74.2	37.1	28.7
	Shade	67.6	44.4	31.8	25.5

*Panting

Table 5. - Mean rectal temperatures of cows in the shade and in the sun (Mean of 852 observations)

Shade temp. °F.	Cows held in	Purebred Angus °F.	3/4 Angus 1/4 Brahman °F.	1/2 Angus 1/2 Brahman °F.	Purebred Brahman °F.
86-95	Sun	104.0	103.4	101.8	101.3
	Shade	102.8	101.9	100.9	101.0
76-85	Sun	102.4	101.9	101.1	101.1
	Shade	101.7	101.4	101.0	101.0

It is seen from the above that the purebred Aberdeen-Angus under Gulf Coast climatic conditions has considerable difficulty in disposing of normal body heat with the result that, at the higher summer temperatures and especially when exposed to direct solar radiation, a febrile condition results. The other strains react in the same way but the reaction is less pronounced as the amount of Brahman breeding increases. In the purebred Brahman no febrile condition results. Conversely, the Brahman is discomforted with the cold.

With the possible exception of the mountain ranges in the northern tier of States, summer conditions are sufficiently severe throughout the United States to cause considerable discomfort to cattle and some drop in production. This is especially true of cattle on a high plane of nutrition, as steers on feed and high-producing dairy cows. The high day and night temperatures of summer are not, however, sufficiently prolonged in Northern States to affect, in a permanent way, growth and production as is the case in the lower South. Just where the geographic line of permanent and temporary effects of high atmospheric temperatures can be drawn has not yet been determined.

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SPRING LAMB CONFERENCE

Lexington, Ky., was the seat of a regional lamb production and marketing conference held May 15-17, 1941. It was the sixth annual event of the kind held in this territory. Representatives from the following States participated: Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, North Carolina, Ohio, Tennessee, Virginia, West Virginia and Wisconsin. The meeting was arranged by L. B. Burk of the Federal Agricultural Marketing Service who acted as chairman.

A tour of central Kentucky sheep farms was conducted on the last day under the direction of Dick Miller, Kentucky sheep specialist. The following State animal husbandry extension specialists were in attendance - L. K. Bear, E. L. Benton, L. I. Case, B. F. Creech, E. E. Grissom, Claude Harper, Paul P. Hite, James J. Lacey, R. C. Miller, Harry G. Russell, Sam L. Williams, C. V. Wilson. The conference voted to hold the next annual meeting of Jackson's Mill, W. Va., sometime in June 1942.

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DR. SMITH SAYS ...

Youths grow into accomplishing men and women primarily through their own efforts and the goals they set up for themselves; not through the efforts or goals set up by their parents or teachers or their leaders. The largest service parents can render their children, or teachers render their pupils, or club leaders render their members, is to give those they guide courage and ambition to do and to help develop faith in their own thinking and in themselves. Progress and success come through your own inner urge. The riches of the world are within you. What you think you can do, you can do if you are willing to make sacrifices and to work hard enough for it. If with that comes material wealth, well and good. --C. B. Smith, National 4-H Club News, Sept. 1940.

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RECORDS CAN FIND THE PROFITABLE SOWS

By D. T. Batchelder, Extension Specialist in Animal Husbandry,
California College of Agriculture.

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The expansion in breeding herds to further the program for increased pork production brings to many producers the problem of selecting suitable stock with which to build up their breeding herds. There are many breeders who feel that type or conformation by itself is not a sufficient index of the value of an animal for breeding purposes. During the past three years the Agricultural Extension Service in California has been cooperating with swine producers in securing records of performance on their breeding sows. The purpose of this work has been to assist breeders to secure information on the individual performance of their breeding animals, which would enable their owners more intelligently to select the animals which should be retained for breeding purposes.

Data were secured on the prolificacy of the sows, their ability to raise to weaning age a high percentage of the pigs farrowed, and their ability to produce strong, thrifty pigs of good weight at weaning time. By selecting, for breeding stock, animals out of sows of known producing ability, it is felt that breeders will be able to develop strains of high-producing, rapidly growing animals, which are efficient and economical in their ability to finish for market.

The procedure recommended has been for the producer to select from among the individuals in his herd, a limited number of sows or gilts to be used as foundation breeding stock. Lacking records on the past performance of these animals, the original selection has been based largely on conformation and type plus whatever knowledge the producer may have regarding the past history of the animals. The selected sows were identified by means of ear tags, ear notches, or other suitable methods. This identification together with other essential information on performance was recorded on individual record forms provided for each sow.

As the sows farrowed, records were made of the number of pigs in the litters and the pigs were identified in order to make it possible to follow the litters through to market. At weaning time, or approximately at 56 days of age, the pigs were weighed and recorded according to litters. After all weighings had been completed the record of each sow was summarized and the data thus obtained aided the producer in determining the respective merits of the various individuals as breeding animals. Records secured to date on a total of 1,209 farrowings are summarized as follows:

Total number farrowings	1,209
Total number pigs farrowed	9,466
Total number pigs weaned	7,829
Average mortality to weaning	17.4%
Average number pigs farrowed per sow	7.9
Average number pigs weaned per sow ..	6.4

In commercial herds the value of a sow for breeding purposes is measured largely by the pounds of pork her pigs produce in a given period of time. Size and weight of litter at weaning time have an important bearing on the amount of pork which can be produced from one farrowing. They are therefore, factors, which should be given careful consideration in the selection of a breeding sow, and it is only through the keeping of a record of performance that the producer is able to get this definite information on the individual animals within his herd.

The number of pigs farrowed is a measure of the breeding ability of the sow. The number of pigs weaned gives some indication of her qualifications as a mother. Figures secured in this study show that there is a wide variation between individuals in the same herd, not only with respect to the number of pigs farrowed but also in regard to percent of pigs raised to weaning age. As shown in the above tabulation the average mortality between birth and weaning age for the pigs farrowed was 17.4 percent. The mortality in different litters ranged from 0 to more than 90 percent.

While much of the mortality during the first 8 weeks must be attributed to management or other factors not related to the individual sow, yet in most herds it is a common experience to find certain individuals which, because of extreme nervousness, or clumsiness, or because their pigs are weak and unthrifty, consistently wean a small number of pigs. Such sows are generally not profitable breeding stock and should be culled from the herd. Likewise it is common to find in the herd certain sows which possess superior type but invariably farrow small litters. Animals of this sort cannot as a rule be considered desirable breeding stock.

In addition to enabling the producer to single out the animals which do not do a satisfactory job of raising their litters, the studies have served to focus the attention of the operator on his losses due to mortality, and in some cases through simple changes in management practices, a considerable reduction in mortality has been accomplished.

Weight of the litter at weaning time is also an important consideration in the selection of the brood sow as it is a good indication of her milking ability.

The following tabulation shows the data secured on the pigs at weaning time:

Total number of litters weighed 1,209
 Average litter weight at 56 days 144.4 pounds
 Total number of pigs weighed 7,829
 Average weight per pig at 56 days 22.4 pounds

While the total weight of the litter will depend to a great extent on the number of pigs in the litter at time of weighing, yet there is ample evidence to show that the average weight per pig in large litters may often exceed the average found in small litters. In these records there were numerous instances of sows weaning litters of 3 to 5 pigs averaging less than 30 pounds at 56 days of age, while other sows in the same herd weaned litters of from 9 to 11 pigs averaging upwards of 40 pounds each at 56 days.

Considerable emphasis is placed on the average weight of the pigs at weaning time not only because it is an index as to the milking ability of the sow but also because of its relationship to the length of time required for the pigs to reach market weight.

It has been possible to get complete market data on only 471 head of the pigs involved in this study. Information obtained, however, on the 471 head included in the tabulation below, indicates that there is a direct correlation between weight of the pig when weaned and the length of time it takes him to reach market weight and finish.

Marketing Data on 471 Hogs in Performance Project

Item	Number head	Av. weight 56 days (pounds)	Av. age marketed (days)	Av. market weight (pounds)
All hogs	471	32.9	215	208
High group	161	39.2	208	206
Low group	140	26.0	221	205

As shown above, the 471 pigs involved in the study were marketed at an average age of 215 days. The 161 pigs averaging more than 35 pounds at 56 days of age were marketed in 208 days, while those pigs weighing less than 30 pounds at 56 days required 221 days to reach market, a 13-day longer feeding period than was necessary with the heavier group.

While feed and management are also factors affecting the rapidity of gain, figures obtained in similar studies in other parts of the country bear out the fact that the heaviest pigs at weaning time continued to make the most rapid gains through the entire growing period.

Although the figures compiled so far have dealt only with

performance of sows, it is realized that a record on the performance of boars is of equal importance. A summary will be made of the records of performance of the boars, particularly in those herds large enough to require the services of more than one breeding boar.

The plan is one which is applicable to any herd in which replacements are being raised. With records at hand covering two or three successive farrowings the operator is able to more accurately determine which are his most profitable breeding animals and select his replacements on the basis of the performance of their dams.

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PORK-FOR-DEFENSE PROGRAM

Under date of May 29, Secretary Wickard wrote Director of Extension M. L. Wilson as follows: "It is most encouraging to learn of the enthusiastic vigor with which extension workers are supporting, through their activities, the nation's need for larger quantities of certain kinds of foods. I know that they will continue their effort in this direction as long as the situation demands it. Please convey to them my deep appreciation for the excellent manner in which they have responded to the request for immediate action to support the food-for-defense program."

During the past few weeks Secretary Wickard has made the following public statements regarding the food-for-defense program:

"Defense has become our number one job.... The first task of agriculture is to make sure that there will be plenty of all the foods needed in the defense effort. The time has come to convert feed supplies into food supplies.... Today food is a defense weapon, one of our strongest."

"The immediate objectives of the program so far as pork is concerned are to secure a material increase in average weights of hogs marketed this summer and next fall, and to encourage a large increase in the number of sows bred for farrow in the fall of 1941."

"Hogs have been selected as one of the commodities under the food expansion program because they offer one of the most rapid means of converting feed supplies into concentrated foods needed for defense efforts. Many of their finished products also can be handled with a minimum of refrigeration and shipping space, both vital considerations in present shipments abroad."

"Commercial producers will be looked to for much of this increased production but it should not be overlooked that almost all farmers can produce more hogs, dairy products, poultry, and vegetables for home use. Our first line of defense is a well-fed, healthy people on the home front."

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FENCE-RAIL PHILOSOPHY

By J. J. Moxley, Extension Specialist in Animal Husbandry,
Kansas State College.

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A cattleman's profit comes from either pounds or price--ride a whole range of theories and you come back to this starting spot. Any shift for betterment depends upon one or the other or both. It is simply stated and difficult to do, but that is the Extension man's job.

A post-mortem examination of the past indicates that most of the cattlemen that survived the economists' charted valleys were pretty wise. The ones that are in the saddle now learned their lessons well. Many other good men were caught off balance and unfortunately few regained it. Since earliest cattle history in Kansas, the difficult job has been to survive adverse times, either drought or depression. A system of farming that would guard against these two factors really has had more to do with a family's long-time success than has utmost efficiency if it ignored these things.

From the standpoint of one working for the cattlemen in an advisory capacity, the present group feels that they are doing as well as they can under the circumstances. Any recommendation for improvement must recognize this state of mind. Then, too, the recent past with its debts has kept many on the defensive, and they could not feel free to do the things they would like to do.

Several years' experience indicated to the writer that orthodox indoor meetings which were informative and even entertaining did not change as many things as the cattlemen themselves knew needed changing. Just being on the receiving end of conversation was not enough. They might even nod their heads affirmatively and then go home and do exactly nothing about it. This was not true, of course, of a certain percentage who have always been seeking information to use, but in the main it has been so with this type of meeting.

A "down the road" study of what has happened and is happening brings home the thought that a certain percentage are doing a good job. If the balance of the farmers and cattlemen were doing as good a job as the top 10 or 15 percent, then the individual and the State would be receiving a much greater return from beef. How to obtain such improvement is the task. The sale-ring crowd needs reaching. Indoor meetings haven't enough color or action to suit them. Our best results have been obtained by selecting some of the

men, who are doing a good job in the beef production business and related fields, and conducting a tour to make a study of their operations.

An amplified pasture-corner interview with the owner always carries the human experience appeal that is most convincing. Repeat it a dozen times in a day amid a proper setting of good surroundings and good cattle and the village parson will want to graze good cattle on his lawn. If the top group of feeder calves weigh 500 pounds at weaning, soon the entire cattle fraternity will set that as their target. Most cattlemen are either proud of their cattle or ashamed of them. Leading a crowd past the latter group will cause the owner to apologize and then get a better bull. Some men are a little "touchy" about the merits of their bull. A remark that he is "decent" but not good enough for the cows usually transplants the owner's pride from the bull to the cow herd and gets them new masculine company. Cattlemen are like their cattle, they drift with the crowd; independent, self-reliant, and capable, if they are gathered and following the right fellows in a community, they invariably do "go places." Not a few years of living with them has convinced the writer that there is a world of good information that is not in the "rule book" floating around among them that can be made valuable to the others--that's our job too.

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SYMMETRY IN SCIENCE

Our educational system in science, during and after college, may be partly to blame for a condition that needs attention. We teach young scientists to become members of a group - a clique. We have societies for chemists, for geologists, for about every conceivable break-down of human knowledge. They may be good if not carried too far -- but I believe we have carried them much too far, in college, among both faculty and students, and after college. Too much introspection is not good for either individuals or for specialized groups. They tend to become pressure groups for this or that, and especially for their self-interests and self-glorification. This kind of thing leads our young scientists away from the masses, away from other people, and away from democracy.

Symmetry in science must be achieved if science is to be of its greatest usefulness in a democracy. Problems must be conceived in relationship to the total problem, not just the problem of some one science or some one specialist striving to achieve what he regards as a well-rounded program in terms of his special field. Of course, the scientist is after truth -- wherever it is and wherever it leads, but let us not forget relevancy. --Charles E. Kellogg, Bureau of Plant Industry, U.S.D.A.

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4-H CLUB WORK CAN BE PRACTICAL

By E. F. Rinehart, Extension Animal Husbandman,
University of Idaho.

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The discussion "Can 4-H Club Work be Practical" by Rex Beresford of Iowa, in the March issue of the Extension Animal Husbandman indicates the general trend of thought in modern club work. It has been intended to conduct 4-H Club work in a way to give valuable training in agricultural and livestock production lines. In the livestock clubs the members have tried to follow and sometimes compete with the top show herds of the land. Sometimes it seemed that the only goal sought was to produce an animal that might be declared a grand champion in the show ring. Purebred herds were searched for outstanding calves, often purchased at fabulous prices in hopes of the fame and fictitious value of a grand champion. Extension animal husbandmen were requested to locate steer calves so good that they would be grand champions wherever shown. The question of price did not enter. Professional showmen and herdsmen were tempted to show their best steers in the name of a club member, the son of the owner or a herdsman, in hopes of securing the high price often paid for a 4-H champion. It was not unusual for a club member from a purebred beef farm to be a consistent winner year after year in the junior department until he was disqualified by age when his place in the show ring would be taken by a younger boy from the same outfit.

4-H Club work is intended to fit the members for future usefulness and success. But very few can hope to attain success as professional showmen. After many years of struggling with the problem the club leaders have shown a nationwide tendency to place club work on a more practical basis. For two years the junior shows of Idaho, Nevada and Utah have not awarded champion honors to an individual steer, lamb, or pig. Instead of following the system desirable for the open adult classes, the club animals are classified into market grades. Since this system has been used, fewer purebred steers and lambs appear in the show ring. Practically all the cattle shown are branded steers from the good range cattle outfits. No longer does the 4-H club member and Future Farmer need worry for fear someone else may have an animal that the judge may place above his entry. The goal is to secure a good animal that will finish satisfactorily and place in one of the top commercial grades.

In the show ring the steers good enough to grade Prime are placed in the first row. Each is awarded a purple ribbon. The Choice grade steers stand next, each winning a blue ribbon. Next in line come

the Good grade steers with red ribbons and the Mediums with white. Those lacking in finish are classified and sold as feeders.

At the close of the show the stock is sold according to grade. The judge is usually called upon to place each class in order. This may determine the selling order or the boys may draw for place. At the beginning of the auction, all the Prime steers are led into the ring. It is explained to the buyers that these are the top steers of the show and are of a class that would bring the extreme top of the market. Were the old open-class system followed, one of these would be the grand champion, yet on the commercial market all would sell at the same price without sort. At one State show attended last fall, all steers of each grade sold to individual buyers at the same price. At all other shows attended, they sold at auction with enough variation in price to indicate that the buyers at a junior auction may be as sympathetic and generous as the judge would like to be.

Obtaining steer calves for a club has been simplified. Range cattlemen have become interested and offer selected calves from their range herds for 4-H and Future Farmer boys. In many cases the calf is put out on a contract basis. If the club member feeds a calf for twelve months he receives two-thirds of the net return and the cattleman receives one-third. If fed for less than a year, the money is divided in proportion to the length of the feeding period, the present contract being for the boy to receive 5 percent of the net return of the steer for each month fed. However, the most general plan is to purchase the calves in required numbers from one or more cattle outfits at the fall round-ups. As range calves are uniform in type and no one can tell which calf will feed out best or develop into a Choice or Prime grade steer all are sold at the same price. The selected calves are purchased by weight. Each calf is weighed individually and a number pasted on its rump. The club member gets his calf by drawing a number from a hat, paying for the calf according to actual weight.

The objection raised by some livestock show officials that this system will detract from the interest and attention of the spectators has not proved to be the case. Rather, the reverse is true. Spectators are much interested in watching the animals in the ring and guessing the grade of each individual animal. When an animal does not go in as high a grade as it appears he should from the ring-side, there is much discussion among the spectators as to why this one went to a different grade than first appearance indicated. The educational value of grading rather than the judging of steers has been far greater than anticipated. After years of experience, with both systems and puzzling over prize steers and lambs, trying to convince ourselves and the on-lookers that one was far enough superior

to others to be grand champion, we wonder why we followed so impractical and unfair a system for so many years. All of us like to see livestock placed in order and the grand champion selected. However, our experience leads us to believe that this belongs to professionals in the open classes. It is a sort of post-graduate work and not practical in the junior department.

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TREE BORERS

"The three chief borers of the tree of democracy are, first, inordinate greed, with all its attendant and ramifying evils productive of widespread unhappiness; second, the inherited feudal element in our education, with its attendant poisoning of the faculties to such an extent as to render the attainment of happiness well-nigh impossible; and third, the inability or the unwillingness of the American individual to grasp the great and luminous truth that the foundation of democracy lies in the individual, in his actual personal sense of responsibility and accountability, and his distinct willingness to accept them."

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--Louis Henri Sullivan

"... but livestock is far more than an industry. It is also a way of life. It is important to the nation not merely for the money it brings but primarily for the sort of people it develops." --Denver News.

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OUR IDEAL

"To bring about unity in any people there must be an ideal for which all classes are willing to work and sacrifice. In this country our great ideal is America the land of opportunity for the common man. It is the ideal of a true democracy, a democracy that truly offers equal opportunity for all, and the elimination of special privilege and all selfish motives."

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NEW SOUND MOVIE

A new sound picture entitled "Tuberculosis Control in Poultry and Swine" has been prepared by the Bureau of Animal Industry and the Extension Service. It is a two-reel production and requires about 20 minutes for projection. The picture is available in both 16 and 35 millimeter widths.

The photography and narrative deal with the symptoms of the disease and the appearance of affected tissues. The picture also portrays recommended means of prevention and control.

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NORTH CAROLINA BANKERS AID
IN PURCHASE OF REGISTERED BEEF CATTLE

By Sam L. Williams, Assistant Extension Animal Husbandman,
North Carolina State College.

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For the last six years western North Carolina bankers have shown considerable interest in the expanding beef cattle industry of that area. They have realized the need for more and better quality beef-type cattle, especially good registered bulls. In order to give some idea as to their cooperation the following incidents are mentioned briefly.

In 1935 the First National Bank of Andrews, purchased outright seven registered Angus and Hereford bulls and placed them with reliable farmers in three nearby counties. The county agents were responsible for the placing, care, and management of these bulls. They were offered for public service in the respective communities and the farmer keeping the bull charged \$1.00 service fee to pay for the cost of keeping the bull. These bulls are exchanged every two years and the bank retains ownership.

In September 1938, The Northwestern Bank of Burnsville, purchased five registered Hereford bulls and placed them with farmers in Yancey County who had purchased some grade heifers. These bulls were offered for public service in five different townships and The Northwestern Bank retains ownership.

In the spring of 1940, The First National Bank of Waynesville, financed the purchase of one carload of registered beef-type bulls and heifers which were all bought on order for individual farmers in Haywood County. Some few weeks later The First National Bank of Marshall, financed the purchase of some 56 head of registered beef bulls and heifers for Madison County. These cattle were purchased outright for the farmers. The county agents had charge of the purchasing of this shipment.

In the fall of 1940, The First National Bank at Jefferson, and the Northwestern Bank at Sparta, jointly financed the purchase of 52 registered beef bulls and heifers, which were placed with farmers in Ashe and Alleghany Counties on special order.

For the last three years there has been a tremendous increase in beef cattle interest in eastern North Carolina. At times it has been impossible to locate enough good breeding cattle to supply the demand.

The Banker's Association of eastern Carolina indicated that

its members were interested in the expanding livestock industry of that territory and expressed the desire to aid in a financial way. It was evident that the farmers in this area were turning to a more diversified system of farming since their tobacco and cotton acreages had been greatly reduced.

In the early spring of 1940 the county agents in eastern Carolina were canvassed as to the number of purebred beef-type cattle needed in their respective counties. Their replies indicated that they could handle as many as 40 head of good quality animals. Jasper L. Cummings, secretary of the agricultural committee of the bankers' association, was consulted in regard to financing the purchase of one carload. Plans were worked out for the purchase of the cattle and L. I. Case, extension animal husbandman, went to Kansas and selected 31 head of registered Herefords consisting of 8 females and 23 bulls. They ranged in age from 10 to 14 months.

These cattle were shipped to Rocky Mount where sale arrangements had been made. A price was put on each animal so that the total would pay the original cost of the entire lot plus the expenses of bringing the cattle into the State. In putting a price on these cattle, conformation and quality of each individual were taken into consideration and the price was established accordingly. Before the sale prospective buyers were supplied with mimeographed sheets showing the lot number, age, and listed price. It was announced that the listed price would be the starting bid, and that any money realized from the sale of the cattle over and above that necessary to break even would be rebated on a percentage basis. After the sale we had \$435.00 more than needed to cover costs. A 15 percent rebate was made to all purchasers.

Late last fall following the North Carolina Hereford breeders' sale, the demand for registered cattle was greater than the supply. The county agents indicated that at least another car of registered cattle should be purchased to take care of the demand. Again the bankers' association was ready to cooperate in the purchase of such cattle. We went to Kansas in November and purchased 32 head of registered beef-type cattle, consisting of 17 bulls and 15 heifers. These cattle were shipped to Rocky Mount and handled in much the same manner as the previous shipment. This venture was not so successful as the first and we had to sell some of the cattle at private treaty. However, in the end no money was lost on this carload. The fact that this method of selling the cattle failed to work on second trial may have been due to a number of factors. In the first place, this carload of cattle was lacking in condition and the animals were younger than those of the previous shipment. Then, too, spring sales are usually more satisfactory in this territory than fall or winter sales.

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JUNIOR LAMB FEEDING IN OHIO

By L. K. Bear, Extension Animal Husbandman,
Ohio State University.

The feeding of western lambs as a youth project was inaugurated in 1940 for boys living in southwestern Ohio. The enterprise received the name "The Ohio Fed Western Lamb Project, Dayton Area." Cooperating agencies were the Baltimore & Ohio Railroad; Division of Vocational Agriculture of the State Department of Education; the Producers Cooperative Commission Association; the Dayton Union Stock Yards Company, and the Agricultural Extension Service, Ohio State University. The purposes of the project are:

- 1 - To introduce the feeding of western lambs and to demonstrate the possibility and practicability of the lamb feeding enterprise as an outlet for certain farm crops.
- 2 - To encourage the use of improved methods of feeding, management, grading and marketing.
- 3 - To promote a lamb show and sale at the completion of the project as a method of demonstrating marketing methods and to acquaint feeders with the conformation, quality, finish, weight, and condition desired in the market.

The southwestern portion of Ohio served by the Cincinnati and Dayton markets has for years carried the largest number of livestock found in any section of the State. The supplies of grain and roughage support this situation. This also happens to be the old tobacco-growing area of the State, accounting in a large measure for more farm buildings than found perhaps in any other section. While many livestock leaders have for years believed the Great Miami Valley well suited for lamb feeding because of the facilities for housing, the feeds available, as well as the market outlets nearby, yet lamb feeding never became established in the area.

The junior lamb feeders venturing into the enterprise in 1940 were advised by local vocational agricultural instructors. Information and instructions were provided by the Extension Service and a constant contact with the feeders were maintained through the field service of the Producers' Cooperative Commission Association. Twenty-eight young men who were juniors and seniors in vocational agriculture

or members of Young Farmers' associations, placed 1,020 lambs in their feedlots last fall. The lambs supplied by the Producers' Cooperative Commission Association were a uniform group of Texas lambs, averaging 63.1 pounds, and costing \$8.60 per hundredweight. Each boy participating in the project fed from 15 to 50 head.

A show and sale was held at the Dayton Union Stock Yards at the close of the feeding period, February 21, 1941. There were classes for pens of 20; pens of 10 and individual lambs with premiums for the first 10 places in each class.

The first ten individual lambs averaged 91.5 pounds in weight and sold for \$12.05 per hundredweight (in the fleece). The first 10 lots of 10 averaged 92.2 pounds and sold for \$11.45; while the first 10 lots of 20 weighed 88.8 pounds and sold for \$11.37.

A summary of the project indicated that all the members made money. The average selling price of all lambs was \$10.80 per hundredweight. The average gain on all lambs in the project was 22.6 pounds per head.

A recent meeting held in Dayton where representatives of all cooperating agencies conferred with county extension agents and vocational agricultural instructors was held for the purpose of making plans for 1941. The experiences of 1940 were deemed altogether satisfactory although a need for greater gains on the lambs was brought to light through the selling experience of last winter. The group is planning a similar program for 1941. It is expected that a larger number of lambs will go into the feedlots of the juniors next fall. The regulations set up establish a minimum 25 lambs for beginners, with the available feed and facilities governing the number to be fed by experienced boys.

Plans for next year again involve a show and sale. The principal difference the boys will notice next season will be the elimination of the individual lamb class. All lambs will be graded and those grading Good or better will be eligible for exhibit in pens of 10 and 20. Thus a grand champion lamb has been eliminated from the show and all boys producing lambs of the same grade will receive the same return when the pools of the lambs by grade, are sold following the sale. This feature is a marked departure from established experience but the local instructors and leaders are confident that the results will prove satisfactory, - time will tell. The experience of the first year and the interest of the boys in the area leave little doubt surrounding the fact that the junior lamb feeding enterprise will have a marked influence on the use of spare barn space and tobacco sheds in the Miami Valley.

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CALIFORNIA PLANNING PROCEDURES

(The following recommendations are so sound and so clearly stated that it is believed they will be read with interest and profit by all members of our family circle. They are from the current year's plan of work in animal husbandry from the California Extension Service. --C.D.L.)

The Extension Service recommends that two basic principles be observed in planning adjustments and changes:

1. The land, whether owned or leased, represents the primary investment of the operator, and livestock should be considered as machines which may be used to harvest, convert, and market the products of the land.

2. Every farm or ranch presents an individual problem to be solved.

With these principles as a background, the Extension Service recommends that each operator seek the correct answers to the following questions:

1. Based on possible alternative uses, what can and should the land produce after full consideration is given to both net income per acre and maintenance of soil fertility?

2. Should the crops be marketed directly for cash or sold through livestock?

If livestock is to be relied upon to sell all or part of the crops, what animals can perform this function most efficiently from the standpoint of both feed utilization and market demand for the livestock when ready for sale?

This brings the producer to the point of seeking the answer to still more questions:

3. What kind of animals shall he use--beef cattle, dairy cattle, sheep, or hogs?

4. What class of animals is best suited to his conditions? In other words, if he chooses meat animals, shall he maintain a breeding herd or flock, or will he purchase stockers or feeders? Then should he sell the animals in the feeder stage or when ready for slaughter.

5. What age of animals will best utilize his feeds? This applies especially to beef cattle where the increase may be sold as calves, yearlings, 2-year-olds, or even 3-year-olds.

6. What quality of animals are best adapted to the feed and environmental condition he has to offer?

7. What number of animals can he maintain most efficiently from the standpoint of feed supply?

8. Finally, what is a safe investment in land, facilities, and value of animals, per unit of animals maintained?

Field trials, demonstrations, enterprise efficiency studies, experiment station results, outlook material, information on market trends, possessed by the Extension Service, can aid and has greatly assisted many a producer to arrive at the proper answers to these questions. The very nature of the questions suggests the necessity of coordinating several projects in extension work, especially those of farm management, agronomy, agricultural economics, marketing, and animal husbandry.

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CROSSBRED VS. PUREBRED HOGS

Studies conducted at Beltsville and at the United States Range Livestock Experiment Station, Miles City, Mont., in cooperation with the Montana station, in which various crossbreds and purebreds were involved, gave the following results. In comparisons between pigs possessing different quantities of blood of both Landrace and Poland China, Landrace and Duroc-Jersey, Landrace and Large Black, Landrace and Hampshire, or Yorkshire and Duroc-Jersey and those produced by their parent breeds, the crossbreds were found to be superior, in the majority of cases, in number of pigs farrowed per litter, percentage of pigs born alive, percentage of pigs weaned of those born alive, average birth weight per pig, number of pigs weaned per litter, and average weight per litter at weaning. A summary of the results obtained at Beltsville for weaning weight per litter showed an average of 180.2 pounds for the 10 Duroc-Jersey litters, 194.5 for the 20 Landrace, 178.0 for the 3 Yorkshire, 221.9 for the 24 Landrace X Duroc-Jersey, 234.5 for the 14 Landrace X Large Black, 217.5 for the 33 Landrace X Poland China, and 214.6 pounds for the Yorkshire X Duroc-Jersey litters. The respective average litter sizes at weaning were 6.2, 7.0, 5.7, 8.0, 8.1, 7.5, and 7.7 pigs. --From Report of the Chief of the Bureau of Animal Industry, 1940.

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"Education, after all, is simply the fitting of the eye to see; of the hand to work; of the mind to perceive the truth; of the tongue or pen to express it; and it is by the practice of all these that we educate ourselves and become strong, clear-headed men."

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--Uncle Henry Wallace

PERSONNEL NOTES

Hawaii

Paul A. Gantt, formerly extension animal husbandman in the Hawaiian Extension Service and more recently employed by the Parker Ranch, will return to his old position on July 1, 1941. Mr. Gantt spent several days in Washington, D.C., in early May and also made visits to several of the State colleges while he was on the mainland.

Idaho

E. F. Rinehart, extension animal husbandman, judged the cattle at the Intermountain Junior Fat Stock Show held at North Salt Lake City, Utah, June 3-5.

Indiana

Everett Parker, former Indiana county agricultural agent, assisted P. T. Brown with the horse project work of the Purdue Agricultural Extension Service for a few months this spring.

Mississippi

Paul F. Newell, extension animal husbandman, was a member of the educational tour conducted in April by a national meat packing firm. Visits were made to Chicago, New York City, Boston, Philadelphia, Baltimore and Washington.

Dr. R. S. Sugg of Alabama, former extension animal husbandman in that State, also was a member of the tour group.

U.S.D.A.

K. F. Warner, senior extension meat specialist, is teaching a course in extension methods at the New Mexico College of Agriculture summer school for extension workers, June 9-27.

Virginia

Geo. W. Litton of the V.P.I. college staff is now devoting one-fourth time to extension work with special attention to beef cattle and sheep, with adults and juniors.

Washington

Con S. Maddox, for several years extension animal husbandman in the Washington State College, Agricultural Extension Service, died suddenly on May 3 while returning from a field trip.

West Virginia

Benj. F. Creech, extension animal husbandman, was a member of the educational tour party mentioned above under Mississippi.

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RECENT PUBLICATIONS

(This list is limited to publications of interest to extension workers. In most cases copies are available from the institution or agency issuing them. Do not write to Washington, D.C., for other than U.S.D.A. publications.)

Federal

"Livestock, Meats, and Wool Market Statistics and Related Data, 1940" - Agricultural Marketing Service, U.S.D.A., Washington, D. C. - A statistical handbook, pp. 107, all tables, May 1941.

"Farm Production and Income from Meat Animals by States, 1939-1940," - Agricultural Marketing Service, U.S.D.A., Washington, D.C. - 24-page mimeograph, mostly tables, April 1941.

"Consumption of Agricultural Products" - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C. - mimeograph, pp. 39, mostly tables and graphs, March 1941.

"Feed Statistics" (Supplement to the 1941 issues of the Feed Situation) - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C. - mimeograph, 53 pages of tables, March 1941.

"Judging Beef Cattle," by W. H. Black, Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 14, figs. 8, Rev. March 1941, - Farmers' Bulletin 1068.

"The Making and Feeding of Silage," by T. E. Woodward, Bureau of Dairy Industry, and W.H. Black, et al., Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 30, figs. 11, Rev. Feb. 1941 - Farmers' Bulletin 578.

"Some Factors Affecting the Progeny Testing of Rams," by Ralph W. Phillips, et al., Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 17, Oct. 1940 - Circular No. 580.

"Sheep-Killing Dogs," by V. L. Simmons, Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 39, Rev. Feb. 1941 - Farmers' Bulletin 1268.

"Report of Infectious Equine Encephalomyelitis in the United States in 1940," by J. R. Mohler, Bureau of Animal Industry, U.S.D.A., Washington, D.C. - 5-page mimeograph, April 1941.

"Effect of Crossing Inbred Lines of Guinea Pigs," by Orson N. Eaton, Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 19, graphs 9, March 1941 - Technical Bulletin 765.

"Factors Influencing Length of Gestation and Birth Weight in Cattle," by Bradford Knapp, Jr., et al., Bureau of Animal Industry, U.S.D.A., Washington, D.C. - pp. 11 - reprint from Jour. Agr. Research, Vol. 61, No. 4, Aug. 15, 1940.

"Karakul Sheep Questions and Answers," - Bureau of Animal Industry, U.S.D.A., Washington, D.C. - A.H.D. No. 38, March 1941, pp. 6.

"Quality of Meat as Affected by Freezing Temperatures," by O. G. Hankins and R. L. Hiner, Bureau of Animal Industry, U.S.D.A., Washington, D.C. - reprint from March 1941 issue of Refrigerating Engineering, pp. 5.

"Ranch Management for Screwworm Prevention and Eradication in Texas and Adjoining States," by Daniel C. Parman and William L. Barrett, Jr., Bureau of Entomology and Plant Quarantine, U.S.D.A., Washington, D.C. - pp. 9, mimeograph, Jan. 1941.

"Volunteer Leaders are Essential to the 4-H Program," by Barnard Joy, et al., Extension Service, U.S.D.A., Washington, D.C. - Extension Service Circular 347, Feb. 1941, pp. 29, Mimeograph.

"The Electric Pig Brooder" (Make it Yourself and Make Money) - folder, issued by Rural Electrification Administration, U.S.D.A., Washington, D.C.

State

"4-H Beef Production Handbook," by J. T. Rigden - Arizona Extension Service Circular No. 111, Jan. 1941, pp. 28, figs. 22.

"The Relative Efficiency of Spayed, Open, and Bred Heifers in the Feed Lot," by G.H. Hart, et al., - California Experiment Station Bulletin 645, Dec. 1940, pp. 19, tables 8.

"Planning the Cattle Feeding Program," by Rex Beresford - Iowa Experiment Station Bulletin P20, Feb. 1941, pp. 24, figs. 8.

"Better Living from the Farm - An Aid to National Defense," - Kansas Extension Service mimeograph, pp. 27.

"Calcium in the Nutrition of the Fattening Calf," by A. D. Weber, et al., - Kansas Experiment Station Technical Bulletin 51, Dec. 1940, pp. 91, figs. 14, tables 36.

"Distillery Slop for Hogs," by E. J. Wilford - Kentucky Experiment Station Bulletin No. 408, Aug. 1940, pp. 13, tables 9.

"Selecting, Fitting and Showing 4-H Club Pigs," by John S. Robinson - Tennessee Extension Service Publication 249, April 1941, pp. 8, illus.

"The Use of Sudan Grass Pastures and Other Feeds for Beef Production," by J. H. Jones, et al., - Texas Experiment Station Bulletin No. 599, March 1941, pp. 29, figs. 11, tables 13.

"Building the Farm Freezing Plant," by R. W. Miller and Homer J. Dana - Washington Extension Service Bulletin 257, Dec. 1940, pp. 30, plans 8.

"4-H Pasture and Range Beef Project," - Wyoming Extension Service mimeograph, pp. 39.

Other

"The Normal Diet" (With food value charts) - published by National Livestock and Meat Board, Department of Nutrition, 407 So. Dearborn St., Chicago, Ill., pp. 19.

"Meat Buying Manual for Teacher, Student, Homemaker," - published by the National Livestock and Meat Board, Department of Home Economics, 407 So. Dearborn St., Chicago, Ill., pp. 24, illus.

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COOPERATIVE CALF FEEDING RESULTS

In calf-feeding experiments at East Lansing, Mich., in co-operation with the Michigan Agricultural Experiment Station, one group of calves was full-fed grain from 90 days of age until Choice finish was reached. A corresponding group was fed a limited grain ration after weaning at 7 months of age until a similar finish was attained. Alfalfa hay was kept constant, cottonseed meal was fed according to calf weight, and corn silage was fed ad libitum. The full-fed calves, consuming approximately 1-1/2 pounds of concentrates daily per 100 pounds of live weight, attained Choice finish at 383 days of age and weighed 734 pounds. The limited-fed calves consumed approximately 1 pound of concentrates daily for each 100 pounds of live weight, required 496 days to attain Choice finish, and weighed 828 pounds. The full-fed calves consumed, on the average, 485 pounds more corn but 114 pounds less cottonseed meal, 3,101 pounds less silage, and 275 pounds less hay per calf than the limited-fed calves. --From Report of the Chief of the Bureau of Animal Industry, 1940.

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